

REMARKS/ARGUMENTS

Reconsideration of this application in view of the foregoing amendments and the following remarks is respectfully requested.

Claims 1-4, 6-10, 12-22, 24, 25, 27-38, 40-43, and 45 remain in this application. Claims 5, 11, 23, 26, 29, 38, 39, 44, and 46 have been canceled. Claims 1-4, 6, 8, 9, 10, 15, 19-22, 24, 25, 27, 28, 30, 31, 34, 36, 40-42, and 45 have been amended to more clearly define the invention. Claims 7, 12-14, 16-18, 32, 33, 35, 37, and 43 are unchanged.

Co-pending with the present application is a parallel PCT application, namely, PCT/US03/25743. The claims are very similar in these two applications. The same references as applied here were applied to substantially the same claims in substantially the same way by the same Examiner in that PCT application.

The rejection of claims 28, 29, and 38 under 35 USC §112 is respectfully traversed. The claims now recite the direct evaporative cooler that is described, for example, in the paragraph bridging pages 20 and 21 of the present specification.

The rejections of the claims as anticipated by Vaughan 4,090,370 and Schlom et al. 4,137,058, and obvious in view of Vaughan 4,090,370 are respectfully traversed.

Schlom et al. 4,137,058 teaches that it is "essential" that the output from the wet side be free of dissolved salts or the like. See, for example, Col. 2, Lns. 42-45. This dictates certain fundamental design characteristics of the disclosed pre-cooler. Among these, the tube side is the wet side and the water flows in a thin film down the inside walls of the tubes to avoid the formation of water droplets. See, for example, Figs. 5 and 6, and Col. 3, Lns. 10-15. In contrast, according to the present invention, turbulence and distributed water on the wet side are desirable. The present invention goes completely contrary to the teachings of this

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reference. Certainly, the opposed fans 40, 42, and 44 on the wet shell side as shown in your Applicant's Fig. 1 are directly contrary to the teachings of Schlom et al.

Vaughan 4,090,370 is structured so that any combining of the air streams within the system from the wet and dry sides must take place by way of a serial process. That is, the air first passes through the wet side and then through the dry side. See Vaughan, Fig. 9. By contrast, according to your Applicant's invention the air streams are discharged from both the wet and dry sides before being combined at a location remote from the dry side. Also, the combination of the streams occurs before the combined stream enters the interior of a structure. See, for example, your Applicant's Figs. 1 and 5. Vaughan's purpose in serially combining the air streams is to cool and humidify the air stream. There is no suggestion that either the level of humidity in the air conditioned structure or the rate of water consumption on the wet side could be influenced by combining the air streams according to the present invention. There is no indication that turbulence on the wet side would influence the system one way or another. There is nothing to indicate that this is something that should be considered.

In broad overview, the present invention enables structures to be air conditioned in circumstances where air conditioning is not possible, or at least not practical. Tents and barns, for example, can be air conditioned where there is no access to the power grid and water is in scarce supply. Minimal power requirements and low rates of water consumption are important characteristics of the present invention. Low humidity in the structure as compared to the results achieved by using conventional swamp coolers contributes significantly to the comfort of the users. It appears that turbulence on the wet side (see, for example, fans 40, 42, and 44 shown in Fig. 1 of the present application), and combining the air streams from the dry and wet sides at a location removed from the dry side (see, for

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example, the juncture of conduits 20 and 22 in Fig. 1) before discharging the combined air streams into the interior of the structure are both important to achieving the advantages of the present invention. In the embodiment of Fig. 1, it appears that a substantial amount of water condenses out of the air streams at about the juncture of conduits 20 and 22, and runs back into the shell side of the unit. Fans 40, 42, and 44, in the embodiment of Fig. 1 are opposed to one another so that the colliding air streams create a turbulent mass of air in the form of a mist on the wet side.

The capability of air conditioning a drafty tent or barn shows the importance of the present invention. See, for example, claim 3.

The minimal power requirements of the present invention can be drawn from ambient sources such as solar or wind. See for example, claims 6, 8, 12, and 30-35. This contributes substantially to the utility of the present invention.

The fact that the operation of the present invention provides very low (compared to swamp coolers) humidity levels in the air conditioned structure is important to its utility. See, for example, claims 15, 16, 18, and 36-38.

The ability to operate at very low rates of water consumption are very important to the utility of the present invention. See, for example, claims 28, 29, 34, 36, and 38.

Using the body of water as a cooler has some advantages in extending the life of perishable foods and medicines. See, for example, claim 27.

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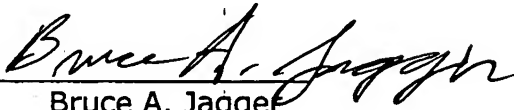
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Reply to Office action of May 14, 2004

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Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

BRUNTON & JAGGER

By 
Bruce A. Jagger
Reg. No. 19,968

Bruce A. Jagger
6100 Center Drive, Suite 630
Los Angeles, CA 90045

Tel.: 310-846-84795
Fax: 310-846-84799
E-Mail: bjagger1@compuserve.com

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